GENERAL BIOLOGY

Baker, John R., M.A., D.Ph. *Man and Animals in the New Hebrides.* London, 1929. Routledge. Pp. 200. Price 12s. 6d.

DR. BAKER is fortunate in that opportunities for exercising his considerable abilities seem to come to him easily, and we are fortunate in that he so readily exploits these, and so fully.

In his new book he gives an account of two visits to the New Hebrides; visits filled with incident, and a book packed with observations and discussions that must be of great interest to all students of human and social biology.

The part that the pig, normal male and hermaphrodite, plays in the social organization is a fascinating story, and there is a chapter devoted to the biology of the intersexual form. Depopulation is discussed at length, and its possible causes critically surveyed. Dr. Baker is of the opinion that the chief agencies responsible are imported disease and abortion. He holds the view that abortion is practised because the natives are depressed by the large death rate due to disease. He urges that these people should be saved, and offers suggestions as to how this might be done—suggestions which are so sound biologically and so impossible financially that of course they will not be followed.

The list of new species collected by the author is a testimony to his industry and an indication of the biological wealth of the islands, and there is a fascinating account of the first scientific exploration of Steaming Hill Lake and of an ascent of Mount Tabwemasana.

A critical study was made of a coral reef, and Dr. Baker does not disappoint his readers, for, as one would expect, he offers a theory of his own concerning its formation. It is refreshing to meet so independent a mind.

The book can be read with pleasure and with profit by anyone, by the specialist, or by the generally well-informed.

It is to be hoped that Dr. Baker will be encouraged to give us more books of this kind. He has much of importance to say to those who are responsible for the further evolution of island societies, and he says it forcefully and clearly.

F. A. E. CREW.

Rensch, Dr. Bernhard. *Das Prinzip geographischer Rassenkreise und das Problem der Artbildung.* Berlin, 1929. Bornträger. Pp. 185. Price Mks. 14·50.

THIS book does good service by reminding us that the species problem is not only not solved, but is not even clearly defined. To the question, What is a species? there are still many answers, none of which meets with general acceptance. Dr. Rensch (who is Curator of the Zoological Museum in Berlin) believes that some order can be brought into this chaos by universalizing the notion of local forms (geographische Rassen) and of associations of local forms (Rassenkreise). He defines a Rassenkreis as a group of local forms which have developed one from another; neighbouring local forms within a Rassenkreis are fertile with each other; though sterility may arise between more distant local forms of the same Rassenkreis.

Dr. Rensch's principle means three names—one the generic, one to show the group (Rassenkreis), and a third to define the local form. This may seem a complication, but the author promises us a compensating simplification—many forms which are to-day designated as separate species are to be 'lumped' together into relatively few Rassenkreise. Apart from new definitions, it is doubtful whether Dr. Rensch has added much to the old controversy between 'lumpers' and 'splitters.' It is difficult to see that any new objective criterion has been brought forward. The question whether the difference between type A or type B is sufficiently small for A and B to be local forms within one and the same Rassenkreis, or whether the difference is large enough to constitute discon-

tinuity, so that A belongs to one Rassenkreis and B to another, is, we are told, to be decided by the specialist. This is all very well within the precincts of a well-ordered museum, where for every department there is a chief whose word is final as to what is or is not a " good species." But in the disorderly world outside, of the many specialists which is to decide?

But Dr. Rensch would not drive his new categories to extremes. The term species is still to be retained for types (not being local forms) which are fertile *inter se* and are morphologically identical. That is to say, true species as defined in this book do not have local variants. This definition nicely betrays the museum mind. Every practical breeder of live animals knows that no two beasts are morphologically identical, and that in any case there are all sorts of other differences (not evident in museum cases) which are none the less real and none the less due to germinal heterogeneity—for example, differences in fecundity, in temperament, in susceptibility to disease, and in tolerance of vitamine deficiency. Indeed, there is good reason to suppose that these physiological varieties are the outcome of more profound genetic differences than are mere changes of colour and pattern, however striking these last may seem in a museum specimen.

Though a species as defined by Dr. Rensch is allowed no latitude, variants are permitted to a local form. Dr. Rensch foresees a difficulty. If the members of local forms, like those of the ideal species as defined above, are to be morphologically identical, the number of local forms within a Rassenkreis may easily become legion. When we are faced with a continuous series of grading forms, then a few are to be picked out to serve as typical local forms, a matter, we are warned, requiring the greatest care (footnote, p. 15). But here again, this is relatively easy for the museum curator—he picks the types that make a striking picture in the glass case. But what do these types, however circumspectly chosen, represent in nature? In the absence of breeding experiments, what ground is there to suppose that their selection is anything but arbitrary?

It is doubtful if Dr. Rensch's new categories provide the key to the species problem. Even the examples selected to illustrate the application of the principle to the different groups of animals bristle with uncertainties, arbitrary decisions, and difficult border-line problems. Nature, let us ever remind ourselves, is so diverse that it is unlikely that her diverse offspring will ever submit to any simple and rigid cataloguing, let alone to one that, in the last resort, depends on the personal judgment of specialists.

M. S. PEASE.

Woodger, J. H., B.Sc. *Biological Principles; a Critical Study.* London, 1929. Kegan Paul. Pp. xii+498. Price 21s.

THIS book is one which may be viewed from two standpoints, that of the philosopher and that of the biologist. Philosophers will no doubt welcome Mr. Woodger's entrance to their ranks with all his biological armoury at their disposal, while the biologists will be glad that one of their number has attempted to bridge the gulf that separates the two subjects. For, although biologists may have wished to correlate the knowledge they have gained by their investigations with the concepts of the philosophers, most have been too busy in their own particular fields of work to have had time to devote themselves to more fundamental things. Mr. Woodger, therefore, has performed a notable service in the production of this book, which will doubtless be of very great value to many biologists.

Mr. Woodger is a follower of the Cambridge school of logicians, especially of Dr. C. D. Broad, Mr. Bertrand Russell, and Professor A. N. Whitehead, whose definition of events as space-time happenings he accepts. He makes, on the other hand, a vigorous attack on phenomenalism, to which he suggests an alternative. A great part of the book is occupied by a discussion on the many well-known biological antitheses, such